



## SEQUENCE LISTING

<110> Reenan, Robert A.  
Rogina, Blanka  
Helfand, Stephen L.

<120> POLYNUCLEOTIDES ENCODING CELLULAR  
TRANSPORTERS AND METHODS OF USE THEREOF

<130> 13407-012001

<140> US 10/017,479

<141> 2001-12-12

<150> US 60/255,013

<151> 2000-12-12

<160> 6

<170> FastSEQ for Windows Version 4.0

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<211> 1719

<212> DNA

<213> Drosophila melanogaster

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<221> CDS

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Asn Phe Phe Ala Asn His Trp Lys Gly Leu Val Val Phe Leu Val Pro	
20 25 30	
ctg cta tgt ctg cct gtt atg ctg cta aac gaa ggc gcc gaa ttt cgg	144
Leu Leu Cys Leu Pro Val Met Leu Leu Asn Glu Gly Ala Glu Phe Arg	
35 40 45	
tgc atg tac ctc ctt ttg gta atg gcc ata ttt tgg gtt acg gaa gcc	192
Cys Met Tyr Leu Leu Leu Val Met Ala Ile Phe Trp Val Thr Glu Ala	
50 55 60	
ttg cct ctc tat gtg acg tcc atg ata ccg att gtg gcc ttc cca ata	240
Leu Pro Leu Tyr Val Thr Ser Met Ile Pro Ile Val Ala Phe Pro Ile	
65 70 75 80	
atg ggt ata atg agc tcg gat cag act tgc cgc ttg tac ttc aag gat	288
Met Gly Ile Met Ser Ser Asp Gln Thr Cys Arg Leu Tyr Phe Lys Asp	
85 90 95	

acg ctg gtg atg ttc atg ggc ggc att atg gtc gcc ctg gct gtg gag	336
Thr Leu Val Met Phe Met Gly Gly Ile Met Val Ala Leu Ala Val Glu	
100 105 110	
tac tgt aat cta cac aaa cgt ctt gcc ttg agg gta atc cag atc gtg	384
Tyr Cys Asn Leu His Lys Arg Leu Ala Leu Arg Val Ile Gln Ile Val	
115 120 125	
ggc tgc agt ccc cgc aga tta cac ttt ggc ctc atc atg gtt aca atg	432
Gly Cys Ser Pro Arg Arg Leu His Phe Gly Leu Ile Met Val Thr Met	
130 135 140	
ttt ttg agc atg tgg att tcg aac gcc gcc tgt act gcc atg atg tgt	480
Phe Leu Ser Met Trp Ile Ser Asn Ala Ala Cys Thr Ala Met Met Cys	
145 150 155 160	
ccg att atc caa gcc gtg ctg gag gag ctg cag gct cag ggt gtc tgc	528
Pro Ile Ile Gln Ala Val Leu Glu Glu Leu Gln Ala Gln Gly Val Cys	
165 170 175	
aaa atc aac cat gag cct caa tac caa atc gtt gga ggc aac aag aaa	576
Lys Ile Asn His Glu Pro Gln Tyr Gln Ile Val Gly Gly Asn Lys Lys	
180 185 190	
aac aac gag gat gag cca cca tac ccc acc aag atc act ctg tgc tac	624
Asn Asn Glu Asp Glu Pro Pro Tyr Pro Thr Lys Ile Thr Leu Cys Tyr	
195 200 205	
tat ctg ggc att gcc tac gcc tcc tcg ctg ggt ggc tgt gga acc atc	672
Tyr Leu Gly Ile Ala Tyr Ala Ser Ser Leu Gly Gly Cys Gly Thr Ile	
210 215 220	
atc gga act gcc acc aat ctt acc ttc aag ggc atc tac gag gct cgt	720
Ile Gly Thr Ala Thr Asn Leu Thr Phe Lys Gly Ile Tyr Glu Ala Arg	
225 230 235 240	
ttc aag aac tcc acc gaa cag atg gac ttc ccc acc ttc atg ttc tac	768
Phe Lys Asn Ser Thr Glu Gln Met Asp Phe Pro Thr Phe Met Phe Tyr	
245 250 255	
tcg gtg cca tcc atg ttg gtc tac acc ttg ctg aca ttc gtg ttc ctg	816
Ser Val Pro Ser Met Leu Val Tyr Thr Leu Leu Thr Phe Val Phe Leu	
260 265 270	
caa tgg cac ttc atg ggt ctg tgg cgt ccc aag agc aag gag gca cag	864
Gln Trp His Phe Met Gly Leu Trp Arg Pro Lys Ser Lys Glu Ala Gln	
275 280 285	
gaa gtc cag agg gga cga gag ggc gcc gat gtc gcc aaa aag gtt atc	912
Glu Val Gln Arg Gly Arg Glu Gly Ala Asp Val Ala Lys Lys Val Ile	
290 295 300	
gat cag cgc tac aag gat ctg ggt ccc atg tcc att cac gag atc caa	960
Asp Gln Arg Tyr Lys Asp Leu Gly Pro Met Ser Ile His Glu Ile Gln	
305 310 315 320	

gtg atg att ctg ttc att ttt atg gtt gtg atg tac ttc acc cgc aag Val Met Ile Leu Phe Ile Phe Met Val Val Met Tyr Phe Thr Arg Lys 325 330 335	1008
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cgt aac tct atg ccc act att ttt gtc gtc gtc atg tgc ttc atg ctg Arg Asn Ser Met Pro Thr Ile Phe Val Val Val Met Cys Phe Met Leu 355 360 365	1104
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acc aag gtg cca tgg ggt ctg gtg ttc ctg ctt ggc ggt ggc ttc gct Thr Lys Val Pro Trp Gly Leu Val Phe Leu Leu Gly Gly Gly Phe Ala 405 410 415	1248
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gtc atc ctg gtg gct gtg ttc ctg acc gcc ttc agc tcc aat gtg gcg Val Ile Leu Val Ala Val Phe Leu Thr Ala Phe Ser Ser Asn Val Ala 450 455 460	1392
att gcc aac att att att ccc gtt ctg gcc gag atg tcc ctg gcc att Ile Ala Asn Ile Ile Ile Pro Val Leu Ala Glu Met Ser Leu Ala Ile 465 470 475 480	1440
gag atc cat cct ctg tac ctg atc ctg ccc gct ggc ttg gcc tgc agt Glu Ile His Pro Leu Tyr Leu Ile Leu Pro Ala Gly Leu Ala Cys Ser 485 490 495	1488
atg gcc ttc cac ctg ccg gtt agt act ccg ccc aac gct ttg gtt gct Met Ala Phe His Leu Pro Val Ser Thr Pro Pro Asn Ala Leu Val Ala 500 505 510	1536
ggc tat gcc aac att agg acg aag gac atg gcc att gct gga atc ggt Gly Tyr Ala Asn Ile Arg Thr Lys Asp Met Ala Ile Ala Gly Ile Gly 515 520 525	1584
ccg acc atc att acc atc atc acc ctg ttt gtt ttc tgc caa acc tgg Pro Thr Ile Ile Thr Ile Ile Thr Leu Phe Val Phe Cys Gln Thr Trp 530 535 540	1632
ggc ctg gtt gtc tat ccg aac ctt aac tcg ttc ccc gaa tgg gct cag	1680

Gly Leu Val Val Tyr Pro Asn Leu Asn Ser Phe Pro Glu Trp Ala Gln  
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<211> 572

<212> PRT

<213> Drosophila melanogaster

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 Leu Leu Cys Leu Pro Val Met Leu Leu Asn Glu Gly Ala Glu Phe Arg  
 35 40 45  
 Cys Met Tyr Leu Leu Leu Val Met Ala Ile Phe Trp Val Thr Glu Ala  
 50 55 60  
 Leu Pro Leu Tyr Val Thr Ser Met Ile Pro Ile Val Ala Phe Pro Ile  
 65 70 75 80  
 Met Gly Ile Met Ser Ser Asp Gln Thr Cys Arg Leu Tyr Phe Lys Asp  
 85 90 95  
 Thr Leu Val Met Phe Met Gly Gly Ile Met Val Ala Leu Ala Val Glu  
 100 105 110  
 Tyr Cys Asn Leu His Lys Arg Leu Ala Leu Arg Val Ile Gln Ile Val  
 115 120 125  
 Gly Cys Ser Pro Arg Arg Leu His Phe Gly Leu Ile Met Val Thr Met  
 130 135 140  
 Phe Leu Ser Met Trp Ile Ser Asn Ala Ala Cys Thr Ala Met Met Cys  
 145 150 155 160  
 Pro Ile Ile Gln Ala Val Leu Glu Glu Leu Gln Ala Gln Gly Val Cys  
 165 170 175  
 Lys Ile Asn His Glu Pro Gln Tyr Gln Ile Val Gly Gly Asn Lys Lys  
 180 185 190  
 Asn Asn Glu Asp Glu Pro Pro Tyr Pro Thr Lys Ile Thr Leu Cys Tyr  
 195 200 205  
 Tyr Leu Gly Ile Ala Tyr Ala Ser Ser Leu Gly Gly Cys Gly Thr Ile  
 210 215 220  
 Ile Gly Thr Ala Thr Asn Leu Thr Phe Lys Gly Ile Tyr Glu Ala Arg  
 225 230 235 240  
 Phe Lys Asn Ser Thr Glu Gln Met Asp Phe Pro Thr Phe Met Phe Tyr  
 245 250 255  
 Ser Val Pro Ser Met Leu Val Tyr Thr Leu Leu Thr Phe Val Phe Leu  
 260 265 270  
 Gln Trp His Phe Met Gly Leu Trp Arg Pro Lys Ser Lys Glu Ala Gln  
 275 280 285  
 Glu Val Gln Arg Gly Arg Glu Gly Ala Asp Val Ala Lys Lys Val Ile  
 290 295 300  
 Asp Gln Arg Tyr Lys Asp Leu Gly Pro Met Ser Ile His Glu Ile Gln  
 305 310 315 320  
 Val Met Ile Leu Phe Ile Phe Met Val Val Met Tyr Phe Thr Arg Lys  
 325 330 335  
 Pro Gly Ile Phe Leu Gly Trp Ala Asp Leu Leu Asn Ser Lys Asp Ile

340 345 350  
 Arg Asn Ser Met Pro Thr Ile Phe Val Val Val Met Cys Phe Met Leu  
 355 360 365  
 Pro Ala Asn Tyr Ala Phe Leu Arg Tyr Cys Thr Arg Arg Gly Gly Pro  
 370 375 380  
 Val Pro Thr Gly Pro Thr Pro Ser Leu Ile Thr Trp Lys Phe Ile Gln  
 385 390 395 400  
 Thr Lys Val Pro Trp Gly Leu Val Phe Leu Leu Gly Gly Gly Phe Ala  
 405 410 415  
 Leu Ala Glu Gly Ser Lys Gln Ser Gly Met Ala Lys Leu Ile Gly Asn  
 420 425 430  
 Ala Leu Ile Gly Leu Lys Val Leu Pro Asn Ser Val Leu Leu Val  
 435 440 445  
 Val Ile Leu Val Ala Val Phe Leu Thr Ala Phe Ser Ser Asn Val Ala  
 450 455 460  
 Ile Ala Asn Ile Ile Ile Pro Val Leu Ala Glu Met Ser Leu Ala Ile  
 465 470 475 480  
 Glu Ile His Pro Leu Tyr Leu Ile Leu Pro Ala Gly Leu Ala Cys Ser  
 485 490 495  
 Met Ala Phe His Leu Pro Val Ser Thr Pro Pro Asn Ala Leu Val Ala  
 500 505 510  
 Gly Tyr Ala Asn Ile Arg Thr Lys Asp Met Ala Ile Ala Gly Ile Gly  
 515 520 525  
 Pro Thr Ile Ile Thr Ile Ile Thr Leu Phe Val Phe Cys Gln Thr Trp  
 530 535 540  
 Gly Leu Val Val Tyr Pro Asn Leu Asn Ser Phe Pro Glu Trp Ala Gln  
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<212> PRT

<213> *Drosophila melanogaster*

<400> 3

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 Leu Pro Ile Leu Ile Tyr Gly Phe Gln Thr Asp Met Ala Glu Phe Lys  
 35 40 45  
 Cys Leu Trp Leu Ile Val Thr Met Ala Leu Leu Trp Ile Thr Glu Thr  
 50 55 60  
 Leu Pro Ile Tyr Val Thr Ala Leu Phe Pro Leu Val Phe Cys Pro Leu  
 65 70 75 80  
 Leu Gly Leu Val Asn Ala Ser Ile Val Cys Lys Gln Tyr Phe Thr Asp  
 85 90 95  
 Thr Ile Val Val Phe Leu Gly Gly Leu Ile Val Ala Leu Gly Ile Glu  
 100 105 110  
 Tyr Ser Asn Leu His Thr Arg Ile Ala Leu Arg Val Ile Arg Ile Val  
 115 120 125  
 Gly Gly Ser Pro Arg Arg Leu Phe Val Gly Leu Met Ser Val Ser Thr  
 130 135 140  
 Phe Met Gly Leu Trp Ile Ser Asn Ser Ala Gly Thr Ala Met Met Cys  
 145 150 155 160  
 Pro Ile Val Lys Ala Leu Val Asn Glu Leu Asp Thr Asn Lys Ile Phe

				165					170					175	
Pro	Val	Tyr	Met	Thr	Gln	Glu	Glu	Glu	Pro	Val	Glu	Glu	Gly	Glu	Pro
			180					185					190		
Pro	His	Pro	Ser	Lys	Ile	Thr	Val	Ala	Phe	Tyr	Ala	Gly	Ile	Ala	Tyr
		195					200					205			
Ala	Ser	Ser	Ile	Gly	Gly	Leu	Gly	Thr	Leu	Ile	Gly	Thr	Gly	Thr	Asn
	210				215						220				
Leu	Val	Phe	Arg	Gly	Ile	Tyr	Thr	Glu	Arg	Phe	Pro	Thr	Ser	Thr	Val
225					230					235					240
Glu	Ile	Thr	Phe	Ala	Asn	Phe	Met	Phe	Tyr	Ser	Ile	Pro	Leu	Met	Val
			245						250					255	
Ile	Val	Asn	Val	Thr	Leu	Val	Ile	Ile	Ala	Phe	Leu	Ile	Thr	His	Met
		260						265					270		
Gly	Leu	Phe	Arg	Pro	Asn	Ser	Lys	Thr	Gly	Lys	Ile	Ile	Ala	Glu	Ala
	275						280					285			
Asn	Thr	Asn	Arg	Lys	Leu	Met	Glu	Asp	Val	Leu	Arg	Gln	Arg	His	Ile
	290					295					300				
Asp	Leu	Gly	Pro	Met	Ser	Cys	His	Glu	Ile	Gln	Met	Ala	Ile	Ala	Phe
305					310					315					320
Ala	Phe	Met	Ile	Val	Leu	Leu	Ile	Thr	Arg	Lys	Pro	Gly	Phe	Val	Pro
			325						330					335	
Gly	Trp	Ser	Asp	Leu	Ile	Asn	Arg	Lys	Val	Val	Gly	Ser	Ala	Ser	Gly
		340						345					350		
Leu	Ser	Phe	Ile	Val	Leu	Leu	Ile	Phe	Ala	Leu	Pro	Thr	Gln	Tyr	Thr
	355						360					365			
Phe	Phe	Lys	Tyr	Cys	Cys	Gly	Lys	Gly	Pro	Phe	Thr	Ala	Gln	Ala	Ile
	370					375					380				
Asp	Ala	Ile	Leu	Ser	Trp	Glu	Tyr	Val	Leu	Arg	Asn	Ile	Pro	Trp	Gly
385					390					395					400
Leu	Leu	Phe	Leu	Leu	Gly	Gly	Gly	Phe	Ala	Leu	Ala	Val	Ala	Ser	Arg
			405						410					415	
Glu	Thr	Gly	Leu	Asn	Ile	Met	Ile	Ser	Lys	Ala	Met	Gln	Val	Leu	Ile
			420						425				430		
Gly	Leu	Pro	Asn	Ile	Val	Val	Gln	Ser	Ile	Thr	Phe	Val	Leu	Ala	Asn
	435						440					445			
Phe	Phe	Ser	Ala	Phe	Asn	Ala	Asn	Val	Val	Val	Ala	Asn	Ile	Val	Leu
	450					455					460				
Pro	Ile	Leu	Cys	Glu	Met	Ser	Leu	Ala	Leu	Glu	Leu	His	Pro	Leu	Ile
465					470					475					480
Leu	Thr	Leu	Pro	Ala	Cys	Leu	Gly	Ile	Ser	Met	Val	Tyr	Phe	Leu	Pro
			485						490					495	
Val	Ser	Thr	Pro	Pro	Asn	Ala	Ile	Val	Thr	Gln	Tyr	Ala	His	Ile	Lys
			500					505					510		
Thr	Lys	Tyr	Phe	Ala	Cys	Cys	Gly	Ile	Val	Pro	Thr	Ile	Ile	Gly	Ile
	515						520					525			
Ser	Val	Ala	Leu	Val	Asn	Thr	Asn	Thr	Trp	Gly	Leu	Ile	Ile	Phe	Pro
	530					535				540					
Glu	Ser	Lys	Ser	Phe	Pro	Asp	Trp	Ala	Lys	Glu	Ile	Lys	Asn	Gln	Thr
545					550					555					560
Lys	Ile														

&lt;210&gt; 4

&lt;211&gt; 587

&lt;212&gt; PRT

&lt;213&gt; Rattus norvegicus

&lt;400&gt; 4

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Val	Leu	Cys	Leu	Pro	Ile	Phe	Leu	Leu	Pro	Leu	Pro	Leu	Ile	Val	Gln	20	25	30	
Thr	Lys	Glu	Ala	Tyr	Cys	Ala	Tyr	Ser	Ile	Ile	Leu	Met	Ala	Leu	Leu	35	40	45	
Trp	Cys	Thr	Glu	Ala	Leu	Pro	Leu	Ala	Val	Thr	Ala	Leu	Phe	Pro	Ile	50	55	60	
Val	Leu	Phe	Pro	Leu	Met	Gly	Ile	Met	Asp	Ala	Ser	Glu	Val	Cys	Ile	65	70	75	80
Glu	Tyr	Phe	Lys	Asp	Thr	Asn	Ile	Leu	Phe	Val	Gly	Gly	Leu	Met	Val	85	90	95	
Ala	Ile	Ala	Val	Glu	His	Trp	Asn	Leu	His	Lys	Arg	Ile	Ala	Leu	Gln	100	105	110	
Val	Leu	Leu	Ile	Ile	Gly	Val	Arg	Pro	Ala	Leu	Leu	Leu	Leu	Gly	Phe	115	120	125	
Met	Leu	Val	Thr	Ala	Phe	Leu	Ser	Met	Trp	Ile	Ser	Asn	Thr	Ala	Thr	130	135	140	
Thr	Ala	Met	Met	Val	Pro	Ile	Gly	His	Ala	Val	Leu	Glu	Gln	Leu	Gln	145	150	155	160
Gly	Ser	Lys	Lys	Asp	Val	Glu	Gly	Gly	Asn	Asn	Asn	Pro	Thr	Phe	Glu	165	170	175	
Leu	Gln	Glu	Glu	Cys	Pro	Gln	Lys	Glu	Val	Thr	Lys	Leu	Asp	Asn	Gly	180	185	190	
Gln	Pro	Val	Ser	Ala	Pro	Ser	Glu	Pro	Arg	Thr	Gln	Lys	Thr	Gln	Glu	195	200	205	
His	His	Arg	Phe	Ser	Gln	Gly	Leu	Ser	Leu	Cys	Ile	Cys	Tyr	Ser	Ala	210	215	220	
Ser	Ile	Gly	Gly	Ile	Ala	Thr	Leu	Thr	Gly	Thr	Thr	Pro	Asn	Leu	Val	225	230	235	240
Leu	Gln	Gly	Gln	Val	Asn	Ser	Leu	Phe	Pro	Gln	Asn	Gly	Asn	Val	Val	245	250	255	
Asn	Phe	Ala	Ser	Trp	Phe	Gly	Phe	Ala	Phe	Pro	Thr	Met	Ile	Ile	Leu	260	265	270	
Leu	Leu	Leu	Ala	Trp	Leu	Trp	Leu	Gln	Val	Leu	Phe	Leu	Gly	Val	Asn	275	280	285	
Phe	Arg	Lys	Asn	Phe	Gly	Phe	Gly	Glu	Gly	Glu	Glu	Arg	Lys	Gln		290	295	300	
Ala	Ala	Phe	Gln	Val	Ile	Lys	Thr	Gln	Tyr	Arg	Leu	Leu	Gly	Pro	Met	305	310	315	320
Ser	Phe	Ala	Glu	Lys	Thr	Val	Thr	Val	Leu	Phe	Val	Leu	Leu	Val	Val	325	330	335	
Leu	Trp	Phe	Thr	Arg	Glu	Pro	Gly	Phe	Phe	Pro	Gly	Trp	Gly	Asp	Thr	340	345	350	
Val	Phe	Ala	Asn	Glu	Lys	Gly	Gln	Ser	Met	Ala	Ser	Asp	Gly	Thr	Val	355	360	365	
Ala	Ile	Phe	Ile	Ser	Leu	Val	Met	Phe	Ile	Ile	Pro	Ser	Lys	Ile	Pro	370	375	380	
Gly	Leu	Met	Gln	Asp	Pro	Lys	Lys	Pro	Gly	Lys	Leu	Lys	Ala	Pro	Pro	385	390	395	400
Ala	Ile	Leu	Thr	Trp	Lys	Thr	Val	Asn	Asp	Lys	Met	Pro	Trp	Asn	Ile	405	410	415	
Val	Ile	Leu	Leu	Gly	Gly	Gly	Phe	Ala	Leu	Ala	Lys	Gly	Ser	Glu	Gln	420	425	430	
Ser	Gly	Leu	Ser	Glu	Trp	Leu	Gly	Asp	Lys	Leu	Thr	Pro	Leu	Gln	His	435	440	445	

Ile Pro Pro Ser Ala Thr Ala Val Ile Leu Cys Leu Leu Ile Ala Ile  
 450 455 460  
 Phe Thr Glu Cys Thr Ser Asn Val Ala Thr Thr Thr Leu Phe Leu Pro  
 465 470 475 480  
 Ile Leu Ala Ser Met Ala Gln Ala Ile Cys Leu His Pro Leu Tyr Val  
 485 490 495  
 Met Leu Pro Cys Thr Leu Ala Ala Ser Leu Ala Phe Met Leu Pro Val  
 500 505 510  
 Ala Thr Pro Pro Asn Ala Ile Val Phe Ser Phe Gly Gly Leu Lys Val  
 515 520 525  
 Ser Asp Met Ala Arg Ala Gly Phe Leu Leu Asn Ile Ile Gly Val Leu  
 530 535 540  
 Ala Ile Thr Leu Ser Ile Asn Ser Trp Ser Ile Pro Ile Phe Lys Leu  
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 Asp Thr Phe Pro Ser Trp Ala His Ser Asn Thr Ser Gln Cys Leu Leu  
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 580 585

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 <212> PRT  
 <213> Rattus norvegicus

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 Ala Leu Pro Pro Lys Glu Gly Arg Cys Leu Tyr Val Ile Leu Leu Met  
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 Ala Val Tyr Trp Cys Thr Glu Ala Leu Pro Leu Ser Val Thr Ala Leu  
 50 55 60  
 Leu Pro Ile Ile Leu Phe Pro Phe Met Gly Ile Leu Pro Ser Ser Lys  
 65 70 75 80  
 Val Cys Pro Gln Tyr Phe Leu Asp Thr Asn Phe Leu Phe Leu Ser Gly  
 85 90 95  
 Leu Ile Met Ala Ser Ala Ile Glu Glu Arg Asn Leu His Arg Arg Ile  
 100 105 110  
 Ala Leu Lys Val Leu Met Leu Val Gly Val Gln Pro Ala Arg Leu Ile  
 115 120 125  
 Leu Gly Met Met Val Thr Thr Ser Phe Leu Ser Met Trp Leu Ser Asn  
 130 135 140  
 Thr Ala Ser Thr Ala Met Met Leu Pro Ile Ala Ser Ala Ile Leu Lys  
 145 150 155 160  
 Ser Leu Phe Gly Gln Arg Asp Thr Arg Lys Asp Leu Pro Arg Glu Gly  
 165 170 175  
 Glu Asp Ser Thr Ala Ala Val Arg Gly Asn Gly Leu Arg Thr Val Pro  
 180 185 190  
 Thr Glu Met Gln Phe Leu Ala Ser Ser Glu Gly Gly His Ala Glu Asp  
 195 200 205  
 Val Glu Ala Pro Leu Glu Leu Pro Asp Asp Ser Lys Glu Glu Glu His  
 210 215 220  
 Arg Arg Asn Ile Trp Lys Gly Phe Leu Ile Ser Ile Pro Tyr Ser Ala  
 225 230 235 240  
 Ser Ile Gly Gly Thr Ala Thr Leu Thr Gly Thr Ala Pro Asn Leu Ile  
 245 250 255



Leu Leu Gly Gln Leu Lys Ser Phe Phe Pro Gln Cys Asp Val Val Asn  
 260 265 270  
 Phe Gly Ser Trp Phe Ile Phe Ala Phe Pro Leu Met Leu Leu Phe Leu  
 275 280 285  
 Leu Val Gly Trp Leu Trp Ile Ser Phe Leu Tyr Gly Gly Met Ser Trp  
 290 295 300  
 Arg Gly Trp Arg Lys Lys Asn Ser Lys Leu Gln Asp Val Ala Glu Asp  
 305 310 315 320  
 Lys Ala Lys Ala Val Ile Gln Glu Glu Phe Gln Asn Leu Gly Pro Ile  
 325 330 335  
 Lys Phe Ala Glu Gln Ala Val Phe Ile Leu Phe Cys Leu Phe Ala Ile  
 340 345 350  
 Leu Leu Phe Ser Arg Asp Pro Lys Phe Ile Pro Gly Trp Ala Ser Leu  
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 Phe Ala Pro Gly Phe Val Ser Asp Ala Val Thr Gly Val Ala Ile Val  
 370 375 380  
 Thr Ile Leu Phe Phe Phe Pro Ser Gln Lys Pro Ser Leu Lys Trp Trp  
 385 390 395 400  
 Phe Asp Phe Lys Ala Pro Asn Ser Glu Thr Glu Pro Leu Leu Ser Trp  
 405 410 415  
 Lys Lys Ala Gln Glu Thr Val Pro Trp Asn Ile Ile Leu Leu Leu Gly  
 420 425 430  
 Gly Gly Phe Ala Met Ala Lys Gly Cys Glu Glu Ser Gly Leu Ser Ala  
 435 440 445  
 Trp Ile Gly Gly Gln Leu His Pro Leu Glu His Val Pro Pro Leu Leu  
 450 455 460  
 Ala Val Leu Leu Ile Thr Val Val Ile Ala Phe Phe Thr Glu Phe Ala  
 465 470 475 480  
 Ser Asn Thr Ala Thr Ile Ile Ile Phe Leu Pro Val Leu Ala Glu Leu  
 485 490 495  
 Ala Ile Arg Leu His Val His Pro Leu Tyr Leu Met Ile Pro Gly Thr  
 500 505 510  
 Val Ser Cys Ser Tyr Ala Phe Met Leu Pro Val Ser Thr Pro Pro Asn  
 515 520 525  
 Ser Ile Ala Phe Ser Thr Gly His Leu Leu Val Lys Asp Met Val Arg  
 530 535 540  
 Thr Gly Leu Leu Met Asn Leu Met Gly Val Leu Leu Ser Leu Ala  
 545 550 555 560  
 Met Asn Thr Trp Ala Gln Ala Ile Phe Gln Leu Gly Thr Phe Pro Asp  
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 Trp Ala Asn Thr His Ala Ala Asn Val Thr Ala Leu Pro Pro Ala Leu  
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 Thr Asn Asn Thr Val Gln Thr Leu  
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<210> 6

<211> 592

<212> PRT

<213> Homo sapiens

<400> 6

Met Ala Thr Cys Trp Gln Ala Leu Trp Ala Tyr Arg Ser Tyr Leu Ile  
 1 5 10 15  
 Val Phe Phe Val Pro Ile Leu Leu Leu Pro Leu Pro Ile Leu Val Pro  
 20 25 30  
 Ser Lys Glu Ala Tyr Cys Ala Tyr Ala Ile Ile Leu Met Ala Leu Phe  
 35 40 45

Trp Cys Thr Glu Ala Leu Pro Leu Ala Val Thr Ala Leu Phe Pro Leu  
 50 55 60  
 Ile Leu Phe Pro Met Met Gly Ile Val Asp Ala Ser Glu Val Ala Val  
 65 70 75 80  
 Glu Tyr Leu Lys Asp Ser Asn Leu Leu Phe Phe Gly Gly Leu Leu Val  
 85 90 95  
 Ala Ile Ala Val Glu His Trp Asn Leu His Lys Arg Ile Ala Leu Arg  
 100 105 110  
 Val Leu Leu Ile Val Gly Val Arg Pro Ala Pro Leu Ile Leu Gly Phe  
 115 120 125  
 Met Leu Val Thr Ala Phe Leu Ser Met Trp Ile Ser Asn Thr Ala Thr  
 130 135 140  
 Ser Ala Met Met Val Pro Ile Ala His Ala Val Leu Asp Gln Leu His  
 145 150 155 160  
 Ser Ser Gln Ala Ser Ser Asn Val Glu Glu Gly Ser Asn Asn Pro Thr  
 165 170 175  
 Phe Glu Leu Gln Glu Pro Ser Pro Gln Lys Glu Val Thr Lys Leu Asp  
 180 185 190  
 Asn Gly Gln Ala Leu Pro Val Thr Ser Ala Ser Ser Glu Gly Arg Ala  
 195 200 205  
 His Leu Ser Gln Lys His Leu His Leu Thr Gln Cys Met Ser Leu Cys  
 210 215 220  
 Val Cys Tyr Ser Ala Ser Ile Gly Gly Ile Ala Thr Leu Thr Gly Thr  
 225 230 235 240  
 Ala Pro Asn Leu Val Leu Gln Gly Gln Ile Asn Ser Leu Phe Pro Gln  
 245 250 255  
 Asn Gly Asn Val Val Asn Phe Ala Ser Trp Phe Ser Phe Ala Phe Pro  
 260 265 270  
 Thr Met Val Ile Leu Leu Leu Leu Ala Trp Leu Trp Leu Gln Ile Leu  
 275 280 285  
 Phe Leu Gly Phe Asn Phe Arg Lys Asn Phe Gly Ile Gly Glu Lys Met  
 290 295 300  
 Gln Glu Gln Gln Gln Ala Ala Tyr Cys Val Ile Gln Thr Glu His Arg  
 305 310 315 320  
 Leu Leu Gly Pro Met Thr Phe Ala Glu Lys Ala Ile Ser Ile Leu Phe  
 325 330 335  
 Val Ile Leu Val Leu Leu Trp Phe Thr Arg Glu Pro Gly Phe Phe Leu  
 340 345 350  
 Gly Trp Gly Asn Leu Ala Phe Pro Asn Ala Lys Gly Glu Ser Met Val  
 355 360 365  
 Ser Asp Gly Thr Val Ala Ile Phe Ile Gly Ile Ile Met Phe Ile Ile  
 370 375 380  
 Pro Ser Lys Phe Pro Gly Leu Thr Gln Asp Pro Glu Asn Pro Gly Lys  
 385 390 395 400  
 Leu Lys Ala Pro Leu Gly Leu Leu Asp Trp Lys Thr Val Asn Gln Lys  
 405 410 415  
 Met Pro Trp Asn Ile Val Leu Leu Leu Gly Gly Gly Tyr Ala Leu Ala  
 420 425 430  
 Lys Gly Ser Glu Arg Ser Gly Leu Ser Glu Trp Leu Gly Asn Lys Leu  
 435 440 445  
 Thr Pro Leu Gln Ser Val Pro Ala Pro Ala Ile Ala Ile Ile Leu Ser  
 450 455 460  
 Leu Leu Val Ala Thr Phe Thr Glu Cys Thr Ser Asn Val Ala Thr Thr  
 465 470 475 480  
 Thr Ile Phe Leu Pro Ile Leu Ala Ser Met Ala Gln Ala Ile Cys Leu  
 485 490 495  
 His Pro Leu Tyr Val Met Leu Pro Cys Thr Leu Ala Thr Ser Leu Ala

				500					505				510				
Phe	Met	Leu	Pro	Val	Ala	Thr	Pro	Pro	Asn	Ala	Ile	Val	Phe	Ser	Phe		
		515						520					525				
Gly	Asp	Leu	Lys	Val	Leu	Asp	Met	Ala	Arg	Ala	Gly	Phe	Leu	Leu	Asn		
	530					535						540					
Ile	Ile	Gly	Val	Leu	Ile	Ile	Ala	Leu	Ala	Ile	Asn	Ser	Trp	Gly	Ile		
545					550					555					560		
Pro	Leu	Phe	Ser	Leu	His	Ser	Phe	Pro	Ser	Trp	Ala	Gln	Ser	Asn	Thr		
				565					570					575			
Thr	Ala	Gln	Cys	Leu	Pro	Ser	Leu	Ala	Asn	Thr	Thr	Thr	Pro	Ser	Pro		
			580					585					590				